CLAIM AMENDMENTS

1-36. (canceled)

37. (currently amended): A method to screen for a modulator of the expression of a gene in a ~~multi-cellular organism~~ non-human laboratory animal, which method comprises:

a) administering a test substance to ~~a non-human multi-cellular organism~~ said animal which expresses a ~~fluorophore~~ fluorescent protein under the direction of a promoter of an endogenous gene, and determining the expression of said promoter via observing the presence, absence or intensity of the fluorescence generated by said fluorophore at various locations in said multi-cellular organism by whole-body external fluorescent optical imaging while said animal is mobile and not restrained;

b) determining the expression of said endogenous promoter, via observing the presence, absence or intensity of the fluorescence generated by said fluorophore at various locations by whole-body external fluorescent optical imaging, in a control ~~multi-cellular organism~~ laboratory animal while said animal is mobile and not restrained which expresses said ~~fluorophore~~ fluorescent protein under the direction of said promoter of said gene; and

c) comparing the expression of said promoter determined in steps a) and b), wherein the expression determined in step a) is different from that in step b) when said test substance modulates said gene expression;

wherein said ~~fluorophore is a~~ fluorescent protein [[that]] is autofluorescent ~~such that no substrates or cofactors are needed for it to fluoresce~~.

38. (canceled)

39. (currently amended): A method to screen for a ~~multi-cellular organism~~ non-human laboratory animal that expresses a gene at an altered level, which method comprises:

a) administering a mutation-inducing agent or treatment to ~~a non-human multi-cellular organism~~ said laboratory animal which expresses a ~~fluorophore~~ fluorescent protein under the direction of a promoter of an endogenous gene, and determining the expression of said promoter via observing the presence, absence or intensity of the fluorescence generated by said ~~fluorophore~~

fluorescent protein at various locations in said ~~multi-cellular organism~~ laboratory animal by whole-body external fluorescent optical imaging while said animal is mobile and not restrained;

b) determining the expression of said endogenous promoter, via observing the presence, absence or intensity of the fluorescence generated by said ~~fluorophore~~ fluorescent protein at various locations by whole-body external fluorescent optical imaging, in an untreated control ~~multi-cellular organism~~ laboratory animal while said animal is mobile and not restrained which expresses said ~~fluorophore~~ fluorescent protein under the direction of said promoter of said gene; and

c) comparing the expression of said promoter determined in steps a) and b), wherein the expression determined in step a) is different from that in step b) when said ~~multi-cellular organism~~ laboratory animal expresses said gene at said altered level;

wherein said ~~fluorophore is a~~ fluorescent protein **[[**that**]]** is autofluorescent ~~such that no substrates or cofactors are needed for it to fluoresce~~.

40. (currently amended): The method of claim 39, wherein the mutation-inducing agent or treatment causes a mutation in germ-line cells of the ~~multi-cellular organism~~ laboratory animal so that the mutation is stably-transferable to offspring of the ~~multi-cellular organism~~ laboratory animal.